

BVM PNP F/A-18F Super Hornet

1/7.75 Scale

GO FLY GOLD



Length: 88", Wing Span: 67"

Weight: 34# Dry

Fuel Capacity: 3.2L, Smoke: 2.2L

CONSTRUCTION AND OPERATING MANUAL

Version 2 April 2024

Vne 170 MPH Limit Thrust to 36 lbs

**Equipped with HV Servos and should not be operated below 7.2 volts
CCU Pressure should be 75 PSI MAX**

BVM

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INTRODUCTION

Thank you for purchasing the BVM PNP F-18. This model represents the latest in manufacturing technology and completion for the R/C jet enthusiast. The factory has expertly crafted and thoroughly inspected all aspects of the model. Only a small amount of work is required to complete the assembly of your F-18.

This manual contains instructions for safety, operation, and maintenance. It is essential to read and follow all of the instructions and warnings in the manual.

Please read the entire manual to become familiar with the processes and procedures before you begin to assemble your aircraft.

DISCLAIMER

Bob Violett Models Inc. assumes no liability for the operation and use of these products. The owner and operator of these products should have the necessary experience and exercise common sense. Said owner and operator must have a valid Academy of Model Aeronautics license and a "Turbine Waiver" for operation in the U.S.A.

This is a sophisticated jet model aircraft. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or other property.

Notice: Do not use incompatible components or alter this product in any way outside of the instructions provided by BVM, Inc. The BVM F-18 has been designed and flight tested around 36 lbs class engines. Damage to the aircraft may result from exceeding this thrust limitation (36 lbs).

Recommended Accessories

You may have some of these products in your shop, but if not, refer to this list.

- 140N-160N engine of your choice.
- #2 x 7/16 SSSH (Servo Screws) (BVM # 2865)
- #2 x 3/16 Button Head SMS Package (BVM # 5625)
- BVM UAT (BVM# 6044)
- Spektrum 12120 Power Safe Receiver (# VJ-SPMAR12120)
- Spektrum X-Plus 8 Expansion Module (# VJ-SPMXP8000)
- (2) 7.4v Batteries 3000 mAh Magnum Ion (# VU-7304EXB-EC3)
- Fuel Pump/Filter Mount (# PA-SR-0064)
- Demon Aero Cortex Gyro Pro (# V-DA-BD-CortexPro)
- Cortex USB PC Adapter (# V-DA-BD-PC Adapter)
- BVM Over Flow Tank (BVM # 6037)
- 8" Warbird Jet Pilot (#V-WB 10"/8 JET PILOT)

BVM Ultimate Air Trap



Required Tools

A combination of Metric and SAE hex socket and drivers along with a small standard and Phillips head drivers will be necessary.

List of Adhesives/Lubricants/Heat Shield+ Available at BVMjets.com

- BVM AeroPOxy (BVM # 9566)
- BVM Qt Poxy (# 9580)
- Slo-Zap (# PT20)
- Pacer Z-42 (# PT42)
- Super O-Lube (BVM #5779)
- BVM Thin Lube for "O" Rings (BVM # 1945)
- Axle Super Lube (BVM # 5784)
- BVM Dry Lube (BVM # 1947)



Accessories Used to Complete Prototype

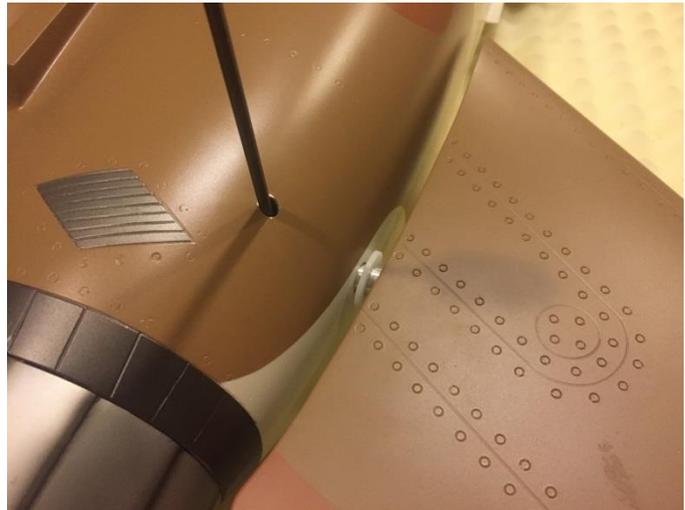
- 1 x AR20310T 20-Channel PowerSafe Integrated Telemetry Receiver (SPMAR20310T)
- 2 x 12-inch EC3 Extension with 16AWG (SPMEXEC312)
- 2 x 3000-4000mAh 2S 7.4V LiPo Receiver Battery
- 1 x Spektrum AS300 or Cortex Pro or iGyro 3e
- 1 x Jet Central Cheetah 160 SE

Begin assembly by removing and inspecting all airframe components. Carefully become familiar with the wiring, landing gear, gear doors, etc. The BVM F-18 PNP is not meant to be a primary turbine trainer. The manual assumes you already have experience with high performance turbine aircraft.

Installing the Horizontal Stabilizers

- Use a 9/64" driver to secure the horizontal stabilizers. Be Sure to install the white plastic washer between the stabilizer and fuselage.
- Final centering adjustments should be made during radio setup.

NOTE: the stabilizer is not fully seated to show the plastic washer.



The Neutral point of the stab is 3" below vertical fin junction at the L.E.

Wing Preparation

Install the left and right aileron as well as the left and right flap using the supplied screws. You will need a 1.5mm driver to complete this step.



Installing The Wings

- Use a 9/64" driver to secure the front and rear clamp bolts.



Wing Missile Rails

- Install the left and right missile rails to the wing tips. Use a 3/32 driver to secure the clamp on the front dowel.

Pro Tip: Use BVM Dry Lube (#1947) to allow dowel pins, tubes, and spars to be inserted with less friction.



Installing The Vertical Fins

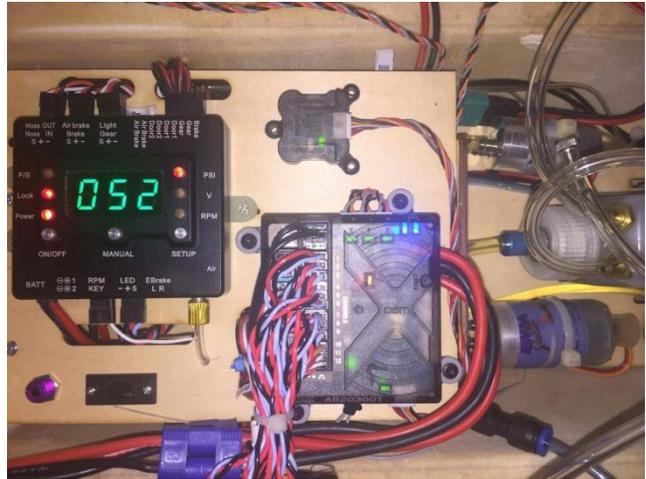
- Connect the LED before installing the vertical fin.



- Use a 9/64" driver to secure the clamp.

Receiver and Gyro Installation

- The simplest gyro installation is utilizing the Spektrum AS300 gyro added to the 20ch PowerSafe receiver. The gyro is programmed from the transmitter in as little as three steps.



- Shown is a basic installation featuring the Spektrum 20 channel PowerSafe receiver and a Cortex Pro gyro.



- This photo shows the same receiver but using an iGyro 3e. A JR MatchBox was used to trim the dual rudders. This is necessary because the iGyro only features 5 outputs.



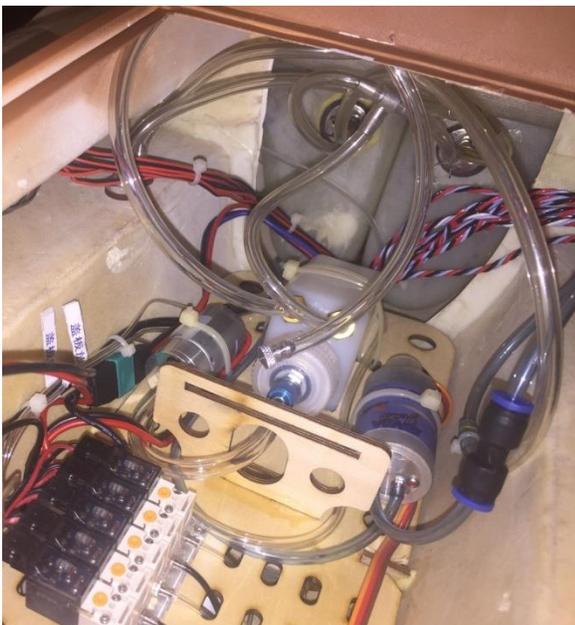
Turbine Mounting and Ultimate Air Trap

- Our demo model used the JetCentral Cheetah 160 SE.
- Mounting of the engine can be done with either self tapping screws #4, or with 4-40 bolts and blind nuts.

There is also a factory installed Heat Shield under the engine not shown.



- Heatsheild was used on the inside of Turbine Hatch as added protection. (BVM#PA-MA-1940)



- Ultimate Air Trap is held in place by a single zip tie.
- Fuel Pump shown on left side of Ultimate Air Trap and Smoke Pump on right.

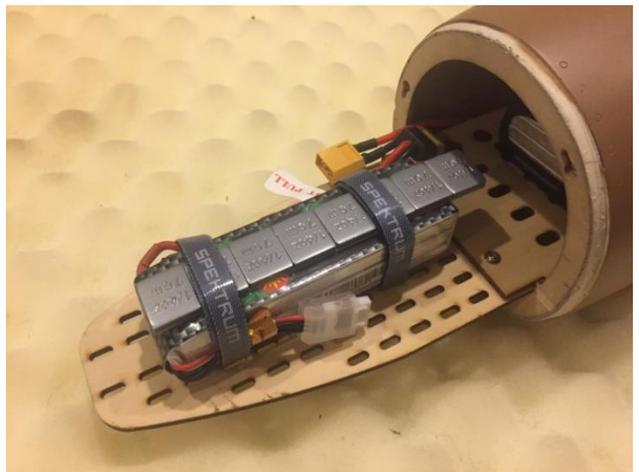
Battery Mounting

- A combination of sticky back Velcro and Velcro Straps are used to secure the ECU and (2) RX batteries.

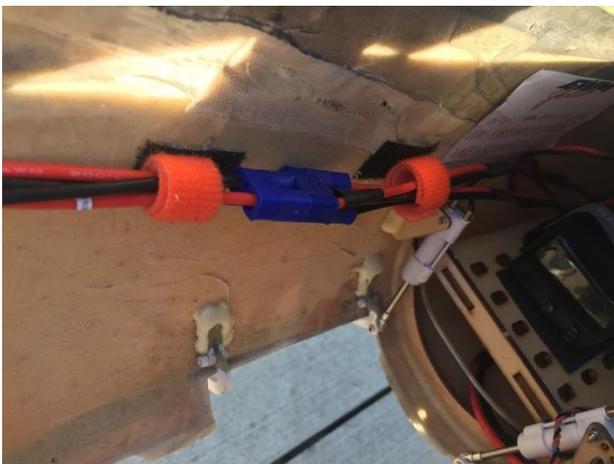
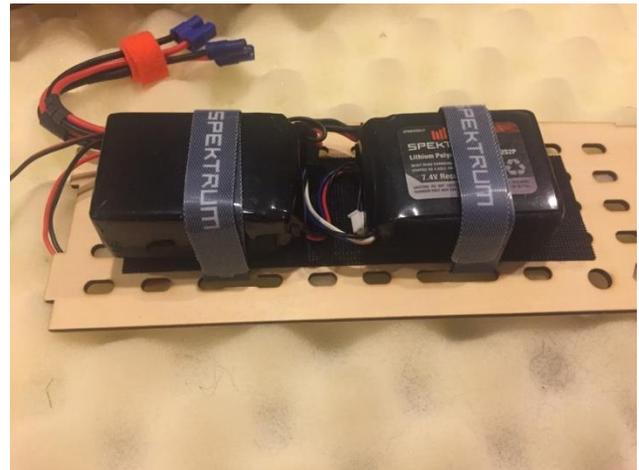


- Mount the ECU battery in the nose cone area using sticky Velcro and two Velcro straps as shown. (updated photo coming)

NOTE: An ECU battery extension will be required. This is different for every brand of turbine. Please use your experience to source high quality wire and use best practices while soldering. The demo model used 1-1/2 ounces of lead for balance.



- Mount the two RX batteries to the front tray using sticky Velcro and two Velcro straps as shown.



- Use (2) 12" battery extensions to connect the RX to the Lipo batteries.
- Velcro strap and two pieces of sticky back Velcro can be used to secure long wires near the nose gear.

Wheels & Brakes Preparation

- Apply a thin coat of Super O'Lube (BVM#5779) to the O'Ring. This will make braking smoother. When you notice the brakes starting to become more aggressive repeat this step.

NOTE: If you need to remove the O'Ring. Use a sharpened wood stick to help remove the O'Ring. Don't use any metal. This will scratch the inside of the brake hub.



- Use a small amount of Axle Grease to the wheel axle. (BVM#5784)

- Use BVM Dry Lube (BVM#1947) on all pivot points on landing gear.



Connecting RX wires

The wires are labeled from the factory. If you are using the DX18, the program is available from BVM. Follow the chart below to connect the servos.

DX18 Wire Connection Chart					
RX Port	Throttle	Aileron	Elevator	Rudder	
Surface	Turbine	RAL	REL	RRU	
RX Port	Gear	Aux1	Aux2	Aux3	
Surface	LFL	LAL	RFL	LRU	
RX Port	Aux4	Aux5	Aux6	Aux7	
Surface	LEL	Gear	Gyro	Lights	
RX Port	X+3	X+4	X+5		
Surface	Lights	Brakes	Steering		

DX18 Control Switches					
Switch	A	B	D	L. Trim	
Surface	LG	Lights	Flaps F-Mode	Nose Wheel Trim	
Switch	E	F	G		
Surface	Brakes	Smoke	Gyro		

Gyro

We used the Cortex Pro in our demo model. We use 25% gain for low and 35% for landing. These will vary for each customer's preference.

Control Deflections

Surface	Direction	Measurement Location	Low	Medium	High
Rudder	Left/Right	Top of Rudder	3/4"	7/8"	1-1/8"
Elevator	Up/Down	Leading Edge of Stab	1-1/8"	1-1/2"	1-7/8"
Aileron	Up/Down	Ail/Flap Junction	1/2"	3/4"	1"
Expo: Typically 15%-25% is used on all surfaces. This is pilot's discretion					
Flap Settings	Measurement	Measurement Location			
Takeoff	7/8"	Flap/Aileron Junction			
Landing	2-1/2"				
Elevator Trim	Measurement	Measurement Location			
Flaps UP Gear UP	3"	Down from Vertical Fin Junction at the Stab Leading Edge			
Flaps Takeoff Gear Down	3-3/8"				
Flaps Landing Gear Down	3-5/8"				
*These measurements are a good baseline.					



Note: Photos show stabilizer deflections and trim positions from table above.

Center Of Gravity

- The Center of Gravity comes pre-marked from the factory. Verify that it is marked at 4.5" back from the corner as shown.



To help mark the Center of Gravity position when the wing is in place, you can use two Buttonhead screws on the bottom of fuse at the fuse wing joint. (BVM # 5625)

First Flight Profile

Flight Time

The BVM demo model's transmitter timers are set for 6 min. On the first flight, land a couple minutes early to check fuel consumption. Adjust the flight timer accordingly.

Taxi Test/Engine Run Up

A taxi test should include a radio range check with the engine running at various power levels. Check that the wheel brakes are adequate, and the stopping action is without skidding or pulling left or right. Be sure to shake the aircraft and push fore and aft with the engine at half power, this will help remove any trapped air bubbles in the fuel system.

Takeoff

NOTE: If a gyro is used select the off position, for first flight until gyro can be tested at a safe altitude.

Begin the takeoff roll by slowly advancing the throttle. Maintain runway center while holding about 1/2 stick up elevator; the F-18 will rotate when it is ready. If there is a cross wind, hold a small amount of aileron into the wind, be prepared with opposite rudder. The aircraft does not need flaperons, we suggest making your first flights "clean wing".

Trim

Once in the air, find a nice cruise speed to set the trims. The aircraft should fly straight and level when "hands off". When the landing gear come down, a few clicks of trim will be needed. This can be mixed in or use flight modes to trim automatically.

Practice Approaches

Save some time at the end of your first flight to practice approaches and go arounds. It is beneficial to become familiar with the low-speed handling of the aircraft.

Landing

Landing is like most jets, "power on" during the approach. The F-18 does not stall easily, it is best to land nose high, touching the main wheels first.

The majority of the first flight should be spent trimming and practicing for the first landing. Save the aerobatics and air show stuff for later flights.

RX Battery Consumption

The average flight using the lights the entire flight consumes 500 mAh. We recommend two flights and recharge. Use this data to calculate how many flights you can achieve from your system. The use of the smoke pump will consume more mAh per flight. 3000 mAh combined capacity is the minimum BVM recommended.

BVM is synonymous with “Success Jets.” It is very important to us that you are successful with our products. This extensive manual reflects our sincerity. As always, your comments and suggestions on BVM products are appreciated.

Pilot’s Notes: